5: Schwimmer E-4,5 (1966-1967) 1973
OJ23 Orokaiva OJ23
Mountain Orokaiva

ACKNOWLEDGEMENTS

This research was made possible through my appointment as an assistant to the Department of Anthropology at the University of Oregon. I was commissioned to write a report for a project directed by Professor H. G. Barnett, entitled 'A Comparative Study of Culture Change and Stability in Displaced Communities in the Pacific'. This commission enabled my wife and myself to visit the Northern District of Papua for one year. I also received help from the Canada Council and the Killam Foundation. 122

I should acknowledge here the contribution made to this research by my wife, Mrs. Ziska Schwimmer, who not only bore with it but made many valuable observations which have been incorporated in this work. Among others who were helpful, kind, encouraging and inspiring in the field I should mention: Dr. R. Crocombe, executive officer of the New Guinea Research Unit of the A.N.U.; Miss Nancy White, a missionary and collector of valuable Orokaiva texts; Mr. M. Lean, head teacher of the Sasembata mission school; Dr. A. Radford, director of the Saiho hospital; Mr. C. Searle, a planter of Awala; their wives; and many other individuals attached to the mission and the administration. 128

My Papuan interpreters, research assistants and chief informants were the following: Mr. Stephen Oriri of Inonda; Messrs. Harold Heru, John Douglas and Brian Orua of Hohorita; Messrs. Robert Nanisi and Leon Bhagi and Miss Patricia Jove, of Sivepe; the Rev. Albert McLaren of Sasembata mission station, and Mr. Walter Waki of Popondetta. I owe a very special debt to Mr. Cromwell Burau who stayed with me for three weeks and communicated to me some of his deep insight into Orokaiva culture: and to Samuel Jovareka, our Orokaiva father, of Sivepe. 114 115 124

I should like to thank also some of the scholars who, for better or for worse, have helped in the development of this work by their encouragement, criticism and information; in alphabetical order: Dr. Homer G. Barnett, Dr. Cyril S. Belshaw, Dr. Kenelm O. L. Burridge, Dr. A. Capell, Dr. Peter Carstens, Dr. Jan Pouwer and Mr. Adrian Tanner. Finally I would thank the Social Sciences Division, Scarborough College, University of Toronto, for excellent secretarial services. 128

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121 followed is especially appropriate for making sense of Melanesian societies, and perhaps other societies also. For the method to be consolidated, a second field study will be necessary, explicitly and systematically oriented towards communication systems, boundary systems, proxemics and the like, covering the communication of women, material objects and messages, and including at least some comparative perspective and some myth analysis. The present work, however, seems a necessary first step in plotting such new approaches to ethnography.

121 My work was much facilitated by a wealth of previous studies of the
114 Orokaiva,[4] of which the most valuable is still F. E. Williams' *Orokaiva Society* (1930). Re-study proved it to be a highly accurate work, focusing on the most challenging problems posed by the social system. Among these are the bilateral tendencies in the kinship system classified as patrilineal; the plant emblem groups; the relation of 'homicidal emblems' to initiation rituals and especially the subtleties of the value system, brilliantly handled in the chapter on 'Morality'.

A successor can fulfil various useful offices, some minor, some major. First, Williams' work can be used as a basis for a study of culture change. I have done this to some extent in an earlier work (Schwimmer 1969) and in the present work where the argument demanded it. Secondly, *Orokaiva Society* provides a composite picture of a number of closely related, yet by no means identical
[101] systems (Mountain Orokaiva, Aika, Yega, Binandere, etc.) In this re-study, I confined myself to Mountain Orokaiva, reserving for another occasion a survey of the diversities in degree of patrilineality, kinship terminology, ritual forms, leadership patterns and the like, all related to the ecological base and settlement history.

Thirdly, Williams' study of the Orokaiva was made early in his career. When reading his later works, we note analyses (on sex affiliation, 1932; on dual division, 1924, Ch. VIII, 1936 Chs. VI–IX, 1940: 32–5; on 'disease and its treatment 1940–2: 90–105; and on totemic groups, e.g. 1940) that would apply with minor variations to the Orokaiva, but are not developed in Williams' writings on that tribe. We need not suppose that in the Northern District Williams failed to observe what he saw and described in relation to Kerari or Elema. It is more likely that he was progressing steadily along a highly individual analytical path, leading him only gradually to perceptions which were theoretically far ahead of his times. In any case, in my analysis of Orokaiva plant emblem groups (Ch. X) my presentation is very close to Williams' work on the Elema, although it departs from that on the Orokaiva. Similarly, I have drawn on his writings on 'sex affiliation' among the Koiari and 'dual division' in the Gulf District, on disease at Lake Kutubu and so forth, thus bringing to bear the insights of Williams' maturity on Orokaiva material.

These are the minor tasks. The major one is to continue the search for system in New Guinea societies on the basis of these insights and of the theoretical discoveries of the last thirty years. Thus this book is in a sense a dialogue with Williams to which I contribute new data that seem relevant.

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5. *The Message of the Sacred Flutes*

We are now in a position to analyse Williams' data on the *otohu*. Recent theoretical advances in anthropology help us to a fairly easy solution to the problem of the *otohu* by following up a clue Williams threw away as insignificant. Williams was actually very close to the solution I now propose. He recognised that the explanation of the *otohu* is to be found in the ritual of initiation. He also recognised that Chinnery's and Beaver's explanation of initiation, (viz. that it educates by showing initiands the terrifying power of the spirits), 'does not lay sufficient stress on the actual paraphernalia, viz. the bullroarers and flutes, which play a more important part in the ceremony than would appear' (1930: 195). Finally, Williams records (*ibid.*, 185) that in some localities such as Wasida, one of the duet of flutes is actually called *otohu* and the other *e* (= mother). Though this usage is only local, it nevertheless gives us a crucial insight into the significance of the word *otohu*.

Seeing that the Wasida people used the same word for the mental qualities known as *otohu* and the larger and lower-pitched of the pair of sacred flutes, it is useful to inquire whether some symbolic equivalence exists between these mental qualities and these objects. The question falls into two parts. First, we have to explain why there should be any association between a flute and a set of social virtues. Secondly, we have to explain why the flute called *otohu*, which is symbolically equivalent to a set of moral virtues, should be played in antiphony to another flute called *e*. As for the first question, Williams reports that these flutes are never seen but only heard by the uninitiated and that they are regarded as voices of the spirits or *embahi*. The initiated have seen the *embahi* and are allowed to see and play the sacred flutes. They have made the acquaintance of the world of primal ancestors who enunciated and established the moral rules of social behaviour. As children they were taught to obey these rules, but as initiates they have experienced a mystic unity with the deities who established them. The sacred flutes, being voices of the spirits, have communicated these rules in their spiritual essence. Now an *otohu embo* (a man of good character, ibid., p. 205) is a man who lives according to the message he has received from the sacred flutes. The connection between the flutes and the set of social virtues is therefore not difficult to establish.

Secondly, why should the flute called *otohu* be played in antiphony to a flute called *e*? To answer this question let us first recall that according to Williams' own evidence (*ibid.*, 185), the Orokaiva classify one of this pair of flutes – always the larger and lower-pitched one – as masculine and the other as feminine. If the latter is equated to 'mother', then what kinsman is associated with the masculine flute? It seems most plausible that the masculine flute should be symbolically equivalent to the mother's brother, as it is he who acts as initiator of the novice and is thus, on the social level, the mediator between the latter and the spirit world. He teaches the initiand to play the flutes, he gives him medicines which ensure success in adult roles, and finally he presents him with the ornament called *otohu*. The association here is clear enough, but see model 34 on p. 187.[A]

Throughout the Orokaiva world we find the opposition of the male and female principle: between killing and nurture, bush and garden, victim and taro

A [See Category 431—Analyst]

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CHAPTER XI

EPILOGUE

I have not presented in this work all the empirical facts that may be elucidated with the proposed model of Orokaiva society. I have had space to discuss only a small minority of the myths which are at my disposal but there are a number of others that are more readily understood in the light of my analysis of social structure. The description I have given of corporate activities in patrilineal descent groups has been rather summary, even though much additional evidence could have been marshalled presenting them as competitive segments of a wider non-agnatic collectivity. The rather interesting institution of hereditary friendship, between both men and women, has not been described although this forms a not unimportant part of the total exchange network. Indeed, I have not reported the exchange network in much detail at all, largely because this has already been done in my earlier work entitled *Cultural Consequences of a Volcanic Eruption Experienced by the Mount Lamington Orokaiva* (1969).

Many of the facts reported in this earlier work can be more adequately explained in the light of the analysis offered in the present one. Orokaiva reactions to the eruption, for instance, are not easy to account for unless we can explain the powerful driving force of the *iji eha* ideology discussed in Chapter IV above. The earlier work also did not elucidate the relationship between Orokaiva and the white man. It was made clear that this relationship is an ambivalent one, positive when the Orokaiva leader plays the roles of councillor, village constable or 'committee', but negative when he plays the role of organiser of a co-operative or of transmitter of messages with a millenarian import. Although these roles were described in detail, I perhaps did not make it clear enough that they are often played by the same individuals at different times, or at the same time, and that even if they are played by different individuals, these are not necessarily thereby placed in a position of conflict between one another.

We can, however, easily account for this ambivalence if we remember that social exchange between Orokaiva and white authorities is subject to the laws of the exchange system: there is an alternation between positive and negative cycles. Some members of an Orokaiva group may be in a positive cycle of reciprocity with white authority while others are in a negative one. This does not necessarily mean that the members of the Orokaiva group are in conflict with each other. The same members of a community may support both a co-operative to which the administration objects, and a councillor who acts as an administrative mouthpiece.

The facts are that the administration provides valuable benefits (and the mission likewise) so that there is a sound basis for cycles of positive reciprocity.

6: Crocombe E-4,5 (1963) 1964 OJ23 Orokaiva OJ23

Foreword

We were aware before beginning this study that communal plantations in the Northern District had been a failure. The Research Unit is generally more interested in successful ventures than in unsuccessful ones and this is the only failed experiment to have been included in our current land study programme (which includes more than twenty sample studies in various parts of the country). The reason for this study was that detailed comparative studies were being undertaken with other approaches to cash cropping among the Orokaiva and a full comparison could not be made without the inclusion of the communal experiment. 121

For assistance in the field I am particularly grateful to Mr. Edric Eupu and Mr. Cromwell Burau as well as to the people of the many villages we visited in the course of the study. Mr. Max Rimold kindly assisted with research from early published reports. The co-operation and interest of the District Commissioner, Mr. L. Williams, and other officials, missionaries and settlers is acknowledged with gratitude. 128 [114]

Appendix F

The Orokaiva villager's experience of cash cropping

While the writer was conducting research into communal plantations in some villages, an assistant, Mr. Edric Eupu, visited others. The following brief extracts from two of his preliminary reports indicate the natuve of the villager's experience of cash cropping, and help to explain the current lack of enthusiasm on the part of many Orokaiva for further experiments.

Ahora Communal Garden

Before the war there were four cash crops planted at Ahora: coconut, cotton, cocoa and coffee. The coconut was planted on two clans' land. The names of the two clans were Huruba and Gambe. There were three villages took part in the work. The names of the villages and clans who took part in the work were ....

They planted coconuts but did not make any copra. [There was no market for it at the time]. The coconut was ready to make copra, but the Government officer at Buna told the people to plant the cotton. The cotton was planted on Gambe clan's land ..... The people worked one year for the cotton without pay .... When the cotton was ready .... they picked it and took it to Buna (government station) .... and they got paid. The pay was 1/- for each man in the three villages for the work they had done for the cotton. After they got the pay the work on the cotton stopped.

Then government told the villagers to plant the cocoa and they planted. It was planted on Gambe clan's land. The cocoa bore and they took the pods to Buna. Government paid for the pods [but the pay was insufficient] .... Then the coffee was planted on Huruba clan's land .... The people used to work every day .... The pay for the coffee was about 5/- to every man each year. While they were still doing this the war came. After that they did not work until Mt. Lamington erupted.

Foreword

121 The New Guinea Research Unit's current program includes a comparative study of changing agricultural and social systems among a number of groups of the Orokaiva people of Papua's Northern District. A wide variety of schemes for the development of agricultural land has been introduced there, especially over the last decade. As groups to be studied, samples were chosen which currently differ in their systems of land tenure, social organization and management of labour resources - to name the more striking general areas of difference without mention of factors which may be constant.

101 For the present report fieldwork was conducted at Sivepe village (also known as Sive) during December 1962 and January, February and early March 1963 with a brief visit again in May 1963. The basic subject of our study was a sample of 50 villagers.

128 Work in the field was shared by Burau, Ferraris and Rimoldi.
● 114 Of the results which are presented below, the substance of the observations on types of subsistence crops and associated methods of cultivation and on the techniques currently used in the husbandry and production of livestock and of cash-crops at Sivepe[1] is the contribution of Ferraris. He also prepared the preliminary drafts of maps from which he did most of the basic calculations of sizes of landholdings and areas under cultivation.

124 Among other tasks in the field, Burau had the role of interpreter. He also clarified many aspects of the relation of the Orokaiva to their land and contributed points to most parts of the report.

128 Our thanks are due to the people of Sivepe for their hospitality and co-operation, to Mr and Mrs C.E. Searle, who in many ways provided valuable assistance, to Mr and Mrs R. Cheetham, to the staff of the Department of District Administration, the Native Lands Commission and of the Anglican Mission at Agenahambo and Sasembata, who all gave generous help. For information and discussion we are indebted to these people, to Mr H. Plant, Mr R. Spinks and especially to Mr G. Hogbin, Mr P. Krinks and Mr E. Waddell.

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[1] See Chapter 2, Sections b. and c. and Chapter 4, Section c.

128 [114] We were fortunate in the extensive assistance and guidance which we received from Dr R.G. Crocombe in conducting the survey and at all stages in the preparation of the manuscript. Drs Bettison, Brookfield and Brown also read drafts of this report and we are grateful for their comments which we found valuable in revising the manuscript.

127 We wish also to acknowledge the co-operation of the Statistician, Bureau of Statistics, Papua, who made available the data from the Food and Agriculture Organization Survey, and of the trustees of the Mitchell Library, Sydney, who gave permission to quote from F.E. Williams' papers in their collection.

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interviews, expressed opinions, and other relevant data. Daily meteorological observations were made in Sivepe village.

The survey was conducted over three separate periods during 1964-65: 3 February to 3 May, 20 July to 30 August,[1] and 9 November to 3 January. These periods were selected, on the basis of available rainfall data and information in earlier Northern District studies, to cover supposed seasonal variations in weather and hence variations in the intensity of different social and economic activities.[2] Due to the intensive nature of the enquiry, it proved difficult to extend day-to-day investigation beyond two months.

In addition, the researchers spent some time in the Northern District and Port Moresby collecting demographic and economic statistics, information on marketing facilities and the policies and activities of the external agencies operating in Popondetta sub-district. This information was designed to place the selected villages in a regional perspective.

The gathering of field data was shared equally between the authors, with Waddell working in Sivepe village and Krinks in Inonda; each is therefore responsible for the sections specifically dealing with his respective village. Joint responsibility is assumed for Part I but the preambles and discussions in Parts II and III and the whole of Part IV are attributable to Waddell.

Acknowledgments

The study was made possible by a generous grant from the Rural Credits Fund of the Reserve Bank of Australia. In the execution of it the authors owe their principal debt to the residents of Sivepe and Inonda villages for their patience and co-operation over a period of more than seven months when they were exposed to often seemingly indiscreet daily observation and questioning. Vivid memories are retained of their hospitality and friendship. Amongst them Mr Stephen Oriri was pre-eminent. The important role played by our Orokaiva assistants, Messrs Kephas Gibobo, Walter Sivure and Nigel Tiriembo, must also be acknowledged.

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[1] In the case of Inonda, no data were collected in the tenth week of the first period, and the second period was from 27 July to 6 September.

[2] It is appreciated that this is an arbitrary basis if one considers the concept of a year to be valid only in terms of seasonality of climate. The various facets of social and economic activities might operate on cycles of different and varying lengths, as evidenced by the 'pig cycles' of the New Guinea highlands.

Preface

125 (101) In this study, carried out between February and April 1963, seven groups of adult male Orokaiva were tested using a culture-fair test of cognitive ability. There were 20 men in each group, making a total sample of 140.

153 Differences were found between some of the groups; one village obtained significantly higher test results than the other groups and another significantly lower test scores than all others except one.

Some of the total samples were divided into three groups according to productivity or ownership of cash crop trees. There was found to be a significant difference between groups. Those who were most productive tended to have the higher test scores.

128 A principal components factor analysis revealed three factors. Tentative identification suggests a memory factor, a gestalt factor and a less certain third factor.

122 Gratitude is expressed to the New Guinea Research Unit of the School of Pacific Studies, Australian National University, for the financial support which covered field expenses and the cost of travel to Papua.

114 Special thanks are due to Mr Cromwell Burau of the staff of the Unit whose company, assistance and help matched with his special skills made the field work so profitable and enjoyable.

Gratitude is also expressed to Mr I.G. Ord, Chief Psychologist of the Public Service Commission in Port Moresby, for his interest and encouragement in this project. It was his initial research that developed the test and made this project possible.

[p.4 is blank]

177 to be kept under control'. Europeans now living in the Northern
563 District tend to make such wide generalizations. They also tend to allot unique stereotypes to subgroups such as villages or tribes.

The process appears to be one of social spacing in a psychological field thus allowing relationship between broad groups to be defined and fixed. Such a process tends to cause less anxiety in social interaction. Instead of the necessity to formulate a new social relationship with each person, relationships are already defined and the task is simply to find which relationship is applicable. The tribal group is very convenient for this purpose. There exists a strong body of opinion concerning the Orokaiva and his nature, habits, ability and personality, though very little of this has been substantiated by scientific enquiry.

History of psychological testing in Papua-New Guinea

● 114 The first report of psychological research in Papua-New Guinea is that of the Cambridge Anthropological Expedition to Torres Strait Islands in 1898. The expedition, under A.C. Haddon, consisted of Sidney H. Ray (linguistics), Anthony Wilkins (archaeology and anthropology), C.S. Seligman (native medicine and disease) and three young psychologists each of whom was to achieve prominence: W.H.R. Rivers (who became Chairman of the Medical Section of the British Psychological Society), C.S. Myers (who became Director of the National Institute of Industrial Psychology) and William McDougall (later Professor of Psychology at Harvard University then Duke University). Volumes of reports were published intermittently from 1901 to 1935. The most relevant psychological material is found in the Introduction to Vol.I and in Vol.II, Parts I and II.

Rivers (1901) described the subjects investigated as:

> visual acuity and sensibility to light differences, colour vision, including testing for colour blindness, colour nomenclature, the thresholds for different colours, after-images, contrast and the colour vision of the peripheral retina; binocular vision, line dividing; visual illusions, some of which were investigated quantitatively; acuity and range of hearing; discrimination of tone-differences; rhythm; smell and taste; tactile acuity and localisation; sensibility to pain; temperature spots; discrimination of weight and illusions of weight; reaction time and choice time, estimation of intervals of time; memory; mental fatigue and practice; muscular power and motor accuracy; drawing and writing; blood pressure changes under various conditions etc.

114 The work reported was of an anthropometric nature. It follows in the tradition of Galton (1883) and Cattell (1890) who, in their anthropometric laboratories sought to investigate cognitive functioning by measuring psychomotor and sensory capacities.

The importance of this work is less in the significance of the data accumulated than in the fact that 'this was the first occasion on which trained psychologists provided with what apparatus they needed have worked among a primitive people in their natural surroundings' (Haddon 1901-35, Vol.I). No attempt was made to meet the strong criticism made three years earlier by Binet and Henri (1895), concerning the anthropometric orientation of current psychological research, with its emphasis on sensory and simple specialized abilities. A more pragmatic approach to assessment of abilities led to the development of the famous Binet-Simon Scale (1905) which was commissioned in 1904 by the French Ministry of Public Instruction. It was revised in 1908 and translated for American use by Goddard in 1910 and later adapted by Terman in 1916. This proved to be an impetus to the testing movement, which led to the rapid development of applied psychology.

Thus, although the Cambridge Expedition did not have the use of the powerful tool developed by Binet and Simon seven years later, they did have the advantage of the earlier criticism by Binet and Henri which they ignored. The Torres Strait Study, although interesting, and claiming to examine important functions such as memory (1901-35 Vol.II, Part 1:2), neglected much data which might have proved of value to subsequent investigators in the field of pre-literate cognitive ability.

The study of the cognitive capacities of pre-literate people in Papua-New Guinea was neglected until Roscoe's (1953) study, although Porteus (1931) in Australia, Mann (1935) in Fiji, Leiter (1936) in Hawaii, Fowler (1940) in Australia, Havinghurst and Hilkevitch (1944) in Alaska, Biesheuvel (1949) in South Africa and Bhatia (1955) in India, did substantial work in the development of tests of cognitive capacity of pre-literates. Roscoe's work in Papua-New Guinea was not continued. Research into the cognitive capacity of the indigene was delayed until McElwain and Griffiths were asked in 1957 to advise on the feasibility of introducing psychological selection into the recruiting procedure for the Pacific Islands Regiment (PIR) in a manner similar to that employed by the Australian army. Their report (1958) proved favourable and Ord (1959) commenced the design of a test suitable for this purpose in 1958). Ord's work was primarily concerned with the selection of recruits for the PIR although he also studied the performance of school children and Papuan secondary school pupils in Australia. A total of 993 people were tested between July 1957 and October 1958. Reference to this work is also made in the appendix to a survey carried out into the

114 mental health of the indigenes of Papua-New Guinea by Sinclair, McElwain and Campbell (1958). In 1960 van den Hout, McElwain and Ord visited the Schouten Islands in West New Guinea and outlying areas to assess the suitability of the test for these areas. The test was found to be useful, and was employed by the Dutch administration for educational selection.

Ord's work was the first attempt at the construction of a suitable test using modern psychometric techniques. It was, in fact, the first successful construction of a major test of general cognitive ability ever constructed outside Europe or the United States. Most other tests have been specific and have not been put into more general use.

Rationale

121 Intelligence or cognitive capacity is mediated through behaviour and is manifest in performance. All behaviour is a function of innate ability compounded with environment. It is impossible to measure one in isolation from the other. However, it is considered sufficient to infer differences in innate ability from differential test performance where environmental influences are held reasonably constant for the members of any group.

The ability of the testee to adopt an intellectual approach congruent with that of the tester will often determine his performance on a test. This was shown by Runkel and Damrin (1961) in the context of university teaching and examining. The method used to find the solution may vary for the one person from time to time and vary widely from person to person. This method is different from the solution itself. It is the tactices or the method of attack on the problem. The testee will usually have available a repertoire of such tactics for problems which he perceives to be of a certain type; one or more of which he will prefer, probably since they have been successful in the past. The testee whose preferred tactic is, in fact, an efficient one for the particular kind of problem will score well because he can solve more difficult problems faster than a testee whose preferred tactic is not so efficient.

It is probably generally true that when the person who constructs the problem and the testee who attempts to answer it have the same cultural and experiential background, then the testee is more likely to have the appropriate tactics available to solve the problem than when the tester and testee have different backgrounds. This intellectual empathy or like-mindedness between the tester and the testee; or more strictly, between the demands of the problem and the preferred mental tactics of the testee, has been referred to as 'serendipity' by Campbell (1963).

where he was headman for about 12 years. In 1960 he moved his household to a block he was allocated in a land settlement project a short distance from Inonda across the Girua River, but he continued to exert strong influence in the affairs of Inonda. 584

A man from Sewa wished to marry the girl but her father and brother opposed the marriage because, they said, her married sister at Sewa was not happy there. When the present groom returned to Inonda in 1962 she was attracted to him and rejected the Sewa man in his favour. The Sewa man's family were displeased and it was rumoured that they were responsible for the sorcery which caused the groom's father to die.

Late in June, without her father's permission, the bride stayed in the groom's household for a few days and the couple made it known that they wished to marry. The bride's father and brother, especially the former, opposed the marriage. They gave several reasons, but it is difficult to know which was the most important. They said they were angry because she 'ran away' to live in the groom's father's house and that they wished her to marry a man of better prospects and from a family of greater prestige. Her brother, formerly a mission teacher, said she should be baptized so that she could have a church marriage, but this did not happen. Both bride and groom were of the Andiriha clan, but this deviation from the Orokaiva preference for clan exogamy was never openly used as a basis for objection to the marriage.

The bride-wealth for the marriage was set, principally by the bride's father, at $200 in cash and the equivalent of $200 comprising a pig, traditional valuables,[1] household utensils and food. Villagers considered this an extremely high price and evidence collected in the village suggests this was so (see Table 1). An Orokaiva research assistant who had travelled widely through the area said it was unusually high for a small clan such as the Andiriha, although not unusual for large clans.[2] Moreover, as the marriage was endogamous to the clan, the groom could not call on the entire clan's support. 583 [114]

The bride's father said he needed the money to establish a retail store and to buy a motor vehicle, but in September 1965 he had not realized these ambitions. His opposition to the marriage may have moved him to set a high price in the hope of discouraging the groom. However, informants said it was not unusual for a parent or guardian to make a display of anger towards a daughter's [584]

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[1] Traditional ornaments, and feather head-dresses will be referred to collectively as 'traditional valuables'.

[2] C. Burau, personal communication.

Four Orokaiva cash croppers

R.G. Crocombe

121 The four entrepreneurs dealt with in this paper have established themselves by cash-cropping and have subsequently expanded into retail trading. These brief case studies seek to identify some of the factors which may facilitate the emergence of entrepreneurs and some of the inhibiting factors that restrict their success and future development. Where applicable, comparisons are made with villagers of two Orokaiva villages previously studied: Inonda (Crocombe and Hogbin 1963) and Sivepe (Rimoldi 1966).

Introduction

438 Before European contact there was some trading in ornaments, lime, pottery and woodenware among the Orokaiva, but nobody subsisted exclusively or even principally from their production or marketing. With the advent of Europeans the Orokaiva became 177 familiar with the full-time entrepreneur who earned his living by 402 selling wares produced by others, by providing services such as 438 transport or the recruiting of labour, or by producing cash crops using hired labour. There are few Europeans in private enterprise in the area who do not engage in all three classes of enterprise.

The advent of the entrepreneur resulted in significant changes in the Orokaiva way of life. New goods were made available and opportunities for paid employment were created. During the past 402 two generations most Orokaiva men have had some direct contact 438 with commercial enterprise, both as customers and as employees, but until recently few have had the capital or training to engage in the entrepreneurial roles themselves.

Entrepreneurial activity (using the term to include trading and any regular income-earning activity which involves the employment of persons outside one's nuclear family) is a recent phenomenon among the Orokaiva.

101 Field work for this study was carried out in spare time during 114 1962-65, as a sideline to other studies, by the writer, assisted by Mr Cromwell Burau and Mr Edric Eupu. Information was collected 126 on land and food gardens, cash crops, trading, processing, transport, other property, income, work patterns and community leadership.

Work patterns

Records of time spent in various tasks was kept by A for ten weeks, and by B and C for twenty weeks.[1] The results are summarised in Table 6. Records were also maintained for their families and these plus those for the entrepreneurs themselves are summarised in Table 7.

These tables show some marked differences between the work patterns of the entrepreneurs and those of villagers. The entrepreneurs spend less time on subsistence gardening than the villagers spend (5.7 as against 11.5 hours respectively), much less time in wage employment than villagers (nil as against 6.9), more than twenty times more in cash-cropping and trading (19.5 compared with 0.7), only a fraction of the time acquitting traditional social obligations (1.0 as against 8.7) but considerably more in community activities as officers of co-operatives, local government, church bodies and other public agencies (7.6 as against 0.5). The same trends are apparent, though not so marked in degree, where the entrepreneurs' families are included (Table 7).

Time spent on social obligations is kept to a bare minimum. This is facilitated to some extent by the fact that all the entrepreneurs live out of sight of the village houses. Non-conformity would be more difficult if they were living right in the village. During the twenty weeks' survey of B's family, for example, they took only one day off for each of two deaths in the village. Had they lived in the village they would have been involved for many days. In another instance which occurred before this study began, a classificatory brother of B's wife died in Inonda, just over the river from where he was living on his coffee block. After two days' brief formal participation in the mourning he removed to his Hohota house and worked on his cocoa there. Two days after the three weeks' mourning period at Inonda finished he returned to live at the coffee block. Had he remained at the coffee block during the mourning he could hardly have continued to work full-time on his cash crops. The Inonda villagers, by contrast, left cash-cropping entirely during this period.

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[1] The periods recorded were: A and his family ten weeks from 14 June to 23 August 1963; for B, twenty weeks from 1 September 1962 to 18 January 1963 and for C, five and a half weeks from 22 December 1965 to 29 January 1966. No records were made of D's work patterns. Watches and forms for recording work patterns were issued to A's eldest son, B's son and to C. For the first week either the writer, Mr Hogbin or Mr Burau lived with the people maintaining the records, but the period of our residence is not included above. One of us or Mr Eupu made visits to collect the records and discuss problems every few days.

17: Morawetz U-4,5 (1966) 1967 OJ23 Orokaiva OJ23
Ombi-Tara

I am indebted to the New Guinea Research Unit of the Australian National University for generous financial assistance. I wish to thank the Chief Commissioner of Land Titles (Mr D.J. Kelliher) and members of the Commission in Popondetta and Port Moresby; officers of the Department of Agriculture, Stock and Fisheries in Popondetta, and of the Department of District Administration in Popondetta, who discussed various aspects of the project and assisted me in every possible way; Mr Cromwell Bursu, Mr Russell Clarke and Mr Napier Boraba who helped greatly by interpreting both Orokaiva language and culture; Mrs Yvonne McMahon who typed a manuscript which was at times barely legible; and the Ombi-Tara villagers whose warmth, hospitality and enthusiastic co-operation made our stay so enjoyable. Helpful comments on an earlier draft were made by Dr R.G. Crocombe, Mr E.K. Fisk, Mr G.R. Hogbin, Dr R.T. Shand, Mrs S. Faircloth and Mr W. Standish. I am particularly grateful to Dr R.G. Crocombe, Executive Officer of the New Guinea Research Unit, for his advice and encouragement at all stages of the project.

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20: Schwimmer E-5
(1966-1967) 1969
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CORRESPONDENCE

Virgin birth

Sir,

121 [114] The contributions by Spiro and Kaberry in your June issue (3, 242–61, 311–13) and the continuing correspondence (3, 651–6) prompt me to mention briefly the views on physiological paternity held by the Orokaiva of Papua, as explained to me when I was doing fieldwork there in 1966–1967.

842 [715] The Orokaiva believe that a child is conceived when the spirit of a dead kinsman wishes to enter a new human body. If a newborn child is a male, it is believed to have been formed as the result of sexual congress between the father and mother both of whom have contributed 'blood'. The birth of the male child is, therefore, explained by a combination of two events, the entry of the spirit and sexual intercourse. If a newborn child is a female it is believed to have been formed by 'a woman sleeping alone', i.e. the female child is not thought to have a human genitor. While this theory leaves open the possibility of 'virgin birth', Orokaiva notions about the development of the embryo go against it. The growth of the embryo must be stimulated by frequent sexual intercourse. A spirit is said usually to choose a sexually active woman for its rebirth.

553 842 The customs concerning the naming of children are consistent with this theory. The naming of girls is always left to the mother's consanguines as the spirit which entered her is thought to belong to a deceased maternal consanguine. The naming of boys is more complicated as the question arises whether the spirit entered the mother and thus fertilised her, or entered the father and passed from him to the mother. In the former case, it is presumed that the spirit was a dead consanguine of the mother; naming is then entrusted to the mother's consanguines. In the latter case, it is presumed that the spirit was a dead consanguine of the father whose kinsmen are accordingly entrusted with the naming ritual. About half of the male babies are, according to my records, named by maternal relatives, and half by paternal ones.

851 [614] A medicine man (*sivo embo*) is called in to determine to whose side the spirit of a male baby belongs. Both the male and the female babies become part of the paternal clan (the Orokaiva are patrilineal). If a man has paid bridewealth for a woman, he is pater to all the children borne by that woman as long as the

614 182 not unlikely to meet her request. Her brother's children will fear her constant demands and her threats of sorcery. Her actual power is so great that a religious construct, proclaiming her social distance from the men of the clan, and making her look low and insignificant, may help somewhat to keep the embattled clan patrimony together. It is therefore [842] tempting to treat Orokaiva parthenogenesis theory as offering further evidence for the tension between patrilateral and matrilateral kin, though this tension could be demonstrated more easily by less esoteric means.

114 171 842 The Orokaiva case makes one wonder just what constitutes 'knowledge of physiological paternity'. Leach writes about 'basic facts of physiological paternity' (1967: 41) which anyone but an idiot would know. On the other hand, Spiro speaks of a 'theory' and compares 'physiological paternity' to the 'heliocentric universe' (1968: 244)—the latter was a theory that man did not have until the fifteenth century. Spiro does not quite indicate at what point in time mankind obtained 'knowledge' of the former theory, but he evidently thinks it was well before the birth of Jesus. I am not sure just how Spiro would classify the case of the Orokaiva: are they 'ignorant' of physiological paternity or not? Are they less ignorant than the Trobrianders but more ignorant than the Dobuans (who do not believe in virgin birth at all)? Do not all these groups derive their theory on this subject in precisely the same way, namely in the context of a metaphysical cognitive system? It seems to me that a significant difference between the Melanesians and modern man, if it exists at all, does not lie in the substantive content of their theory of physiological paternity, but in the capacity of modern man to show by empirical evidence that the Trobrianders are wrong, the Dobuans right and the Orokaiva in between. As for the contemporaries of Jesus, they seem to resemble the Melanesians rather than modern man, in that they had no such empirical evidence.

121 I think that in primitive thought we should distinguish between empirical generalisations, which may often imply no more than a rough statistical correlation, and deductive theories [813] implying causal connexions. It is notorious [814] that primitive thought will easily move from the former to the latter, as the Orokaiva do, for instance, when they note that *tauga* leaves fall while the main taro crop is coming up and postulate that it is the dropping *tauga* leaves that cause the crop to prosper. There is no reason to believe, however, that the Orokaiva *invariably* make a causal theory out of an empirical correlation and they may even omit to do so where modern thought would applaud such a step. A person may 'know' as

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121 an empirical generalisation that sexual intercourse and conception often go together, and that the latter tends to follow upon the former, without proceeding from this 'basic fact' to the 'theory' that conception is caused by sexual intercourse.

● 114 This point has already emerged from the debate between Leach, Spiro and Kaberry
171 when Kaberry showed evidence that the
842 tribes she studied 'had no idea of the true relation between sexual intercourse and conception' while she admitted that these tribes know empirically that sex relations are a necessary preliminary to pregnancy. She made the valuable point that her informants' empirical knowledge does not logically entail a 'correct' theory of procreation. The Orokaiva case again illustrates that such empirical knowledge may serve as a building block for a wide range of soundly constructed though perhaps 'incorrect' causal theories.

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113 Leach, E. R. 1967. Virgin birth. *Proc. R. anthrop. Inst.* 1966, 39–49.
Spiro, Melford E. 1968. Virgin birth, parthenogenesis and physiological paternity: an essay in cultural interpretation. *Man* (N.S.) 3, 242–61.

[P.133-B]

broader view of the social consequences of the eruption, and therefore included a third village, Hoborita, which lies at the centre of the area most deeply affected by the calamity. Sivepa, lying West of the volcano, escaped the full blast of the explosion; Inonda, to the East, was not directly affected at all, but Hoborita is a village made up of the survivors from Sangara villages situated in the blast area. Hoborita, as well as Kiorota which I visited briefly, has a far larger population than Orokaiva villages normally contain; these people were brought together, as a result of government organisation immediately after the eruption, from more than a dozen of the destroyed villages, comprise more than a dozen clans and constitute a new type of residential unit the origin of which may be directly traced to the eruption. Both Hoborita and Kiorota are situated on land owned by one of the constituent clans. With over 400 inhabitants, they face serious problems of factionalism. The government, which had an active hand in fostering them, had hoped they would solve basic problems of Orokaiva social fragmentation. In fact, one may almost say that the large consolidated village was a principal aim of government planning for the persons displaced by the eruption. Hence, it seems necessary to include consideration of this residential form in the present study.

Of the 12 months spent in the Territory of Papua, my wife and I lived in Orokaiva villages for more than 10 months, dividing the rest of the time between Port Moresby and the administrative centre of Popondetta. Most of the field period was spent in Sivepa, with three weeks in Inonda and five weeks in Hoborita. In Inonda we made use of a house previously used by the New Guinea Research Unit; in Sivepa a village house was built for us while at Hoborita we were squatting in an uncompleted village house--an unsatisfactory arrangement which accounts, in part, for the brevity of our stay. Fortunately, we had extremely competent research assistance at Hoborita, after we stopped residing there. The head teacher, Mr. Harold Heru, prepared extremely good genealogical records, showing residence of matrilateral and affinal kin as well as clan structure and residence.

The basic source of the material that follows are my own field notes. These are supplemented by government records, the publications on the Orokaiva and the eruption published by F. E. Williams, Reay, Belshaw, Keesing, Crocombe, Hogbin, Rimildi, Waddell. I also collected tape recordings containing 50 basic documents in the Orokaiva language; transcriptions in Orokaiva and translations into English are available. A number of Europeans who were concerned with the administration of the temporary refugee camps were interviewed, including Dr. Gunther, Mr. F. Kaad, Mr. C. Searle, Mr. R. Hart and others too numerous to mention. Miss Nancy White, a mission teacher at Hoborita, apart from giving other help, put at my disposal a valuable collection of her diary notes, important letters written to her and Orokaiva texts collected at the Sasembata mission school in the years 1952 - 1953.

133 Just when these preliminaries started is not clear; it may have been one week before the disaster or several weeks. The rumbling and tremors in the mountain, which were usual enough, became more severe; smoke was beginning to come out of the crater in thick puffs high into the sky; the number of craters rose from one to four or five. Ash covered the peaks, areas along the slopes became burnt; sometimes there were flashes of fire; several landslides appeared as brown streaks in the forest. Swarm-pattern earthquakes became widely felt throughout the area. On Thursday, 18 January 1951, the more active phase of the eruption began (Taylor, 1958). The emission rate increased throughout the day; the smoke gushing forth "at a great rate" varied from black to grey and spasms were noted in the crater activity. The emission was described by more distant observers as a slow-moving continuous dark-grey column ascending to many thousands of feet. A survivor who looked at the mountain through a telescope on that day noticed that a large hill had built itself up between the hills at the foot of Lamington and the mountain at the rear. That night, the mountain was shooting fire like an immense fire works. In the Sivepa area, at this time, and on Friday, stones were falling on the gardens, earthquakes were very severe and some houses had collapsed.

731 The Orokaiva interpretation of these events will be clear from what I have already written. It is explicitly supplied by Benson (1955) who reported that the fearsome happenings in the mountain were ascribed to the anger of Sumbiripa. I shall show later that the same view was taken in Sivepa. The clearest description [114] of the state of mind of the people close to the mountain (those who were mostly to become the victims of the blast a few days later) was given in a letter by Margaret de Bibra, head teacher at Martyr's School in the Sangara Anglican Mission. Miss de Bibra died during the eruption but her letter was found after her death (White, n.d.).

> The Papuans--well, most are calm, many are apprehensive and some really frightened, especially those whose villages are near the mount. It is all understandable, in fact it is to their credit that there is no panic. Lamington has not been a volcano within the memory of living man, nor in the legend of the [823] people. (But see above, E. S.) True, Lamington is feared as the home of spirits and no local man--even Christian--will venture to the top. As one of our Church Councillors said: 'The mountain people do not understand. They are afraid. We understand a little and we are afraid too. Our fathers did not know of it. The trembling of the earth--yes, but not

361 In the period from January, 1951-1967, the location of the villages now known as Sivepe and Inonda changed several times. In
●[114] the Sivepe area settlements had always been unstable. Rimoldi has made a valiant attempt to reconstruct shifts of residence from the time of European contact to the present; involved though his reconstruction is, it probably tells only part of the story. In 50 years, the groups now represented in Sivepe had between them been involved in shifts of residence between a series of 14 village sites within an area of about two square miles adjoining the Sohu
[651] River. It is clear that the government carried out some village consolidations in the district after the second world war, but before the eruption. Most of the people now living at Sivepe were, at that time, shifted to a village called Pamba, which had been occupied earlier by the Seho clan only. After the eruption, Pamba was at first reoccupied, but soon the village was shifted almost a mile away, to a place which was called Sivepe. This new village (see Map V)[A] differed from the pre-eruption one in layout, method of house construction and spacing of the dwellings. It conformed to the model advocated by the administration and observed by the refugees when they were at Wairopi and Ilimo. In 1965, Sivepe was shifted to its present site, and higher building standards and better sanitation were again introduced (see Map VI).[B]

Both these shifts were connected with topographical relation-
[578] ships and social relationships outside the village. The first of
[629] them, in 1952, seems to have been precipitated by a quarrel between the Timunu clan of Pamba and the resettlement village of Kongohambo, which then had a population of almost 1,000, over garden damage caused by pigs. Sivepe was much farther away from Kongohambo than Pamba. The second shift was in the opposite direction. It was a move which brought the village closer to the road, closer to the mission, and the reduced distance from Kongohambo no longer mattered as this is now a village of average size, with which good relations exist. The people who lived in Kongohambo in 1952 have returned to their homes closer to the mountain.

These shifts in village sites are accounted for by almost a
361 superfluity of reasons. Rimoldi was told of almost all the shifts
659 he recorded that they were made upon the instructions of the government. I was told of shifts that were made because of deaths attributed to sorcery and because of quarrels between neighboring
361 villages which were too close together for comfort. I witnessed
[628] one shift after a death of an old man where sorcery was not
[754] suspected (as he was old) but being unbaptised he could not be buried in the Christian cemetery which made people fearful of his
[764] ghost. The population of this village shifted to nearby Hohorita,
[775] a move which was in any case favoured by the government. A reason that was also sometimes given was that the houses were all old and the place was becoming unsanitary. A reason never explicitly given, but perhaps as important as any other is the Orokaiva's dislike for

A [See Cat. 116, p. End Map 5--Analyst]
B [See Cat. 116, p. End Map 6--Analyst]

659 was accomplished without any European power bearer making his
571 appearance and any sense of compulsion being created--the people clearly considered the boundaries advocated by the government to be in the popular interest. Yet the bonds of solidarity this being formed do not strengthen the unity of the so-called Waseta tribe but the unity of the Ilgaturu council area as a whole.

628 In this section I have said little about Inonda, because
619 I did not have time to clarify what "tribe" Inonda really belongs. Williams' tribal map shows Inonda as Sausha; Crocombe and Hogbin describe Sausha, quite correctly, as a clan resident near the
● [114] settlement of Dobuduru (where the people speak a different dialect, presumably that which Williams called Dirou). Clearly, the task of establishing "tribal" units in this district would need to be done again, if it is worth doing at all, which I doubt, for reasons already given.

Section 5: Contacts With Other Orokaiva

628 Generally, contacts outside the "Waseta tribe" are sparse.
[582] During the year, only one visit was made to Sivepe, in a kinship
[574] context, by persons from another district. This was a group from Kokoda, where a Sivepe man married 40 or more years ago, and the visit was from that man's children. Several Sivepe persons quoted as an ancestor a woman from Ajoro, a village close to Inonda. It turned out that all these linkages were due to one single event, namely the capture by the Isivita people of three Ajoro women during a raid. Two of these found their way to Garombi where they
[424] married; the third woman's son came to live in Sivepe. Descendants of the Sivepe man continue to exercise each year their hunting rights at Ajoro. I could not find other references to ancestors
[572] beyond the "Waseta tribe" apart from these. Some people mentioned a friend, but rarely more than one, who came from another "tribal" district. Often these friends were found during employment, or at the mission school, or they were persons with special roles in mission or government, who had come to the Sasembata district in the course of their jobs. When women had such friends, it was more
[526] often due to a kinship link. An interesting example of the extending of such links under modern conditions occurred when a man from Sasembata village, employed in Kokoda, invited a number of fellow workers to Sasembata for a football game. These men were likewise in Kokoda for employment and came from the Aiga district.

[659] When the members of the "Waseta tribe" were accommodated at
[731] Ilimo, they were not only the guests of the government which
[574] supplied food and other comforts, but also of the people of Ilimo village who had agreed to the camp being established. From the little I could find out about relationships between hosts and

621 also reported that there is one plant emblem which all Inonda members
614 of the Andiriha clan have in common, a feature not found in Sivepe.

In discussing household composition patterns, I shall simplify
592 the picture somewhat, as for the purpose of this study it is irrelevant
whether children are natural or adopted, legitimate or not, children
of both parents or one and whether clan membership is "primary" or
"permissive." All these questions would be highly relevant, of course,
if we were dealing with a village such as Roborita, where many people
died during the eruption so that many remarriages and adoptions can
[114] be traced to that cause. One of the strange gaps in Williams'
ethnography is that he omits any reference as to household composition;
in his notebooks, he records household composition for two villages,
Durugata and Wasida, showing that in every case in those villages, a
household was made up by a husband, wife and children. In one case of
a polygamous family, the man had two houses, one for the family of one
of his wives and one for the families of the other two.

Informants told me of one rule regarding household composition
592 which is likely to be quite ancient. This is that a man and his wife
606 may not quarrel in the presence of the husband's father (and, needless
to say, in the presence of the wife's father). For this reason, the
people of Sivepe certainly do n.t like three-generation households when
the middle generation is represented by a married couple. It is normal
for a married woman to stay with her parents or her husband's parents
while her own husband is away working for wages--as is frequent among
younger couples. In that case, the household will have three generations,
but the middle generation is represented by a woman only, with the
husband only an infrequent guest. When I came to Sivepe, and the
village was still only half-built, I found three households in which
the middle generation was represented by a husband and wife plus,
sometimes, a few others. In all these three cases, a change had
occurred before I left: the husband and wife had built themselves one
house, leaving another for the old people and perhaps some other adults,
not including couples. This rule seems to be regarded as less important
in Inonda. (See Table 15.)

592 My own impression is that the normal household is composed of
a nuclear family, as appears from the Sivepe (but not the Inonda)
[594] statistics. Widowers and sometimes also widows live in houses by
themselves, even if they have no young children living with them and
[589] do not like staying with their children after they are married. A
widower usually has his meals cooked for him by a daughter or other
close relative who brings the food to this house. Though occasionally,
two married brothers (or other close relatives) live in the same
house, this is likely to be a temporary arrangement. I do not think
that useful sociological conclusions can be drawn from comparison
between Inonda and Sivepe in respect of household compositions, as
there are in Inonda only two households of the type I have shown to be
highly untypical and these may well be accounted for by idiosyncratic
circumstances.

A [See Cat. 116, p. 220--Analyst]

593 further such lucrative young females. Of the six, two were Sivepe
592 women while the other four were women from other villages residing virilocally. A great many other families did not derive income in this way. Some of these, however, had daughters living in other villages, and their husbands too were sources of institutionalised gifts.

464 Though Waddell showed that the loss of adult male workers
433 through migration is already serious (37.8% in Sivepe and 25% in Inonda), the point had not been reached when the loss of manpower led to a decline in the production from garden lands. Waddell may, however, be right in ascribing the increasing consumption of the inferior Xantosoma taro (see page 35 above) to the deflection of the
889 adult male labour force which had to support old people whose vigour had declined. The older men did not stop work abruptly at a certain age; they would continue to go to their gardens, but the areas cultivated would become smaller; their children or young affines would help them. If an old man became widowed his daughter or daughter-in-law would cook food for him; in the case of a widow, uncooked food might be given, but most widows tend to live in a house where there are male relatives, the only two exceptions in the sample being the two widows
[463] who stayed in the old village of Sivepe. There are also activities which are a specialty of the old: they tend to be the village artists and also the village sorcerers. When we wanted to buy artifacts, it was the old men who made the ornaments, the old women who made the best pots and painted the best bark-cloth. Similarly, the most active curers in the village were two old men and one old woman.

595 I saw no evidence of polygamy currently practised. Marriages
585 were always consecrated at the time the couple was baptised. Several people had at one time been divorced, but this was prior to the time
586 of baptism.

In Inonda, as I wrote earlier, no absent husbands sent money
464 home. The only woman at Inonda whose husband was away from the village was in jail, after breaking into a trade store with a hammer belonging to another man from Inonda. On the other hand, one man earned a living as a government driver, thus becoming more or less removed from the work in his subsistence and coffee gardens. Some other men took over his work, in return for appropriate counter gifts and services. In both villages, therefore, a pattern existed of outside earnings derived by a limited number of people whose garden work was taken over by other members of the village labour pool, while the money earnings were in one way or another widely shared among villagers.

Section 7: Division of Labour

114 The division of labour was the special subject of a study
464 carried out in Sivepe by my predecessor, Mr. Waddell. As he has been

A [See Cat. 116--Analyst]

114 kind enough to show me this study in manuscript, I shall utilise it
464 here. The general question with which Mr. Waddell is concerned is whether earlier students of societies depending on shifting agriculture are right in saying that such societies, at least in fertile regions, have a considerable potential labour surplus. He proceeds to argue [166] that, in the light of detailed data on the use of time in Sivepo, what [167] potential labour surplus there might once have been has already been taken up by labour migration of male adults (which, for his sample, he puts at 37.8%). Waddell takes issue with Fisk (1962: 465) who defines economic activity as comprising only the production of food, clothing and shelter, and argues that, given the existing socio-economic matrix, all the other activities listed on his time charts (see Table 5) should be regarded as economic because they buy status and security. [472] He also takes issue with Salisbury (1962: 216-20) who proposes that [461] the change from a stone-to-steel technology in the New Guinea Highlands has resulted in a saving of two-thirds in the time allocated to specified axe-using tasks and who concludes from this that a vast potential labour surplus is thus created. Waddell shows, by a quantitative study of the allocation of time within activities, that only 38.7% of the time allocated to an activity is actually given over to the main task, and even if one includes ancillisar, and other productive tasks, this raises the proportion to less than 50% of the total time devoted to that activity. (See Table 17.) As steel implements are used for only a portion of productive tasks, they did not, Waddell argues, make a crucial difference to Orokaiva work patterns.

114 If at the time of Mr. Waddell's study (1964), the potential
464 labour surplus in Sivepo was small, how was it possible to fit in such
461 new additional activities as the growing of coffee? Mr. Waddell was
241 in an excellent position to discover this as at the time of his survey seven of 15 households surveyed engaged in cash-cropping; he was therefore able to inquire how this affected the time spent on subsistence food production. As it happened, the median time spent on subsistence gardening by the whole sample equalled precisely the median time spent by the cash-cropping households. (12.6 hours per week, vide his Table 5:5) It appears from the table I derived from Mr. Waddell (my Table 17) how the cash-cropping families fit in this extra work: they spend a great deal less time having rests and meals. While non-cash croppers allocate only 28.4% of the time within activities to their main task, the cash-croppers allocate 50.6%. Though Mr. Waddell gives interesting explanations which account for part of this discrepancy, even if full allowance is made for these, the fact remains uncontestably that the cash-croppers simply work harder.

114 Mr. Waddell proceeds to show, by a detailed psychological
241 assessment of the cash-cropping individuals, that they are indeed the
177 most acculturated and industrious members of the community. This seems to suggest a considerable heterogeneity in working habits as between the members of the community. The author clearly shows this heterogeneity to exist as between the sexes and between different age
A,B [See Cat. 116, pp. 209-210, 223-224, respectively--Analyst]

groups, and I shall return to this aspect. In addition, however, a considerable weight is placed upon the difference between individual dispositions. I would suggest that in this respect, Mr. Waddell may have put too much confidence in the results of a synchronic study and it is fortunate that another investigator (myself) was able to observe the community at a time when coffee growing had become a general activity. Regrettably, I did not collect quantitative data of the same scope as Mr. Waddell.

I shall anticipate later chapters by suggesting here, that differences in level of acculturation in Sivepe never go very deep. Certainly, it is always the same minority of relatively acculturated people who are willing to risk making innovations. This applies to the introduction of European styles of clothing, of radios, kerosene lamps, sending children to school regularly, being baptised, building lavatories and also to the growing of coffee and the planting of the improved Malayan rubber trees. All these things are always done first by a few pioneers, and usually the same pioneers. The basis upon which these people become pioneers is usually a relatively shallow contact with western civilisation. Mostly, the new skills, activities and other introductions they sponsor are not so far ahead of the rest of the community that a swing of local fashion cannot make them universal or almost universal properties. There was no evidence of a widening social and economic gap between acculturated and unacculturated families; there was a gap, but it always remained small (at least, so far). The pioneers tried innovations; the conservatives held back until they saw the innovations succeed, as happened by no means always. Then, one, two or five years later, the conservatives followed the progressives. Thus, the activity pattern Waddell observed among the progressives is now much closer to the general norm. The people themselves feel sure that today they work harder and rest less than they used to do. The rest periods I observed were shorter than those measured by Waddell in 1964.

Nonetheless, I would support his main contention that the work day of the cash-croppers of Sivepe today cannot be greatly lengthened, nor productivity greatly increased, unless ways can be found to make work more efficient by technological and other innovations. I have already suggested that a degree of collectivisation would permit the introduction of some labour-saving machinery and better transport facilities. Mr. Waddell makes two further suggestions which need brief discussion.

The first of these is interesting because it questions an assumption that has been almost universally accepted in the literature on shifting cultivation. He argues that the shift from Old to New Sivepe did not actually reduce travelling time from village to garden but in fact lengthened it. He quotes detailed figures to prove this. Village locations, therefore, are not actually being chosen by Orokaiva by criteria of economic rationality, but on wholly non-economic grounds. If this were true, we would need to re-examine whether other societies

433 of shifting cultivators actually do shift their villages to save time
461 as previous investigators have believed: perhaps, we need to look
241 for entirely different motivations.
114 The question is an interesting one, but Sivepa does not provide a clinching counter-instance. Mr. Waddell's sample was taken entirely from the Jegase and Timusu clans, while he did not collect [489] data on travelling time from the Seho clan. Now it is the latter clan [423] which owns most of the land around New Sivepa, so that their travelling time is (at least for most families) substantially reduced by the shift. Furthermore, five of the Jegase households (some of which were formerly called Timusu) now have gardens very close to New Sivepa. The main sufferers appear to be two families who migrated from Binduta recently, whose land is mainly close to Binduta, and against whom feeling has been building up over the last few years. Mr. Waddell is right, however, in stressing that the major reason for the shift (as given by informants) was the closeness of the new village to the road and the mission station. As such the basis of the shift was practical and ideological but I believe that overall travelling time was reduced if both Seho and Jegase clans are taken into account. Certainly the new village is very close to the land of most of the Sorovi people who settled in Sivepa in 1966.

The second suggestion made by Waddell is that travelling time could be reduced, and thus working efficiency increased by land tenure conversion. He has in mind, I think, the arrangement already found in Papuan returned servicemen's settlements established by the government where each individual family is settled on its own 20-acre block and grows cocoa and subsistence crops there. Conceivably, when tenure conversion is completed, the Orokaiva might be encouraged to live on individual farm holdings rather than in compact villages. Some planners in the Territory are actually playing with this idea. It has many drawbacks, however: distance from roads, from schools, collapse of social control institutions, abandonment of useful social development projects such as the provision of good water supplies in the resettlement villages.

Comparison with Inonda suggests that as the proportion of adult males lost through migration from Inonda is smaller, and none of these males have left dependents in the village, and furthermore, as the amount of cash cropping work is relatively smaller, the Inonda people are less pressed for time than those of Sivepa. This is borne out by the fact that they are away from the village more frequently as Waddell's statistics show.

An interesting discovery made by Waddell concerns the time
114 allocation of the elderly. He shows that in adulthood the amount of
887 productive work done decreases with age, as does also the amount of time spent on productive work, but the amount of time devoted to social activities and contacts outside the village declines even more steeply after middle age. The Orokaiva has no leisurely old age. Unlike the [888] Polynesian elder he does not become a sage, remote from economic

affairs, but gives all his declining energies to his garden, keeping as close as possible to the productive level of his better years. He draws closer and closer to his garden where his spirit will dwell after death. Apart from the garden, he becomes remote from most things; his days of household duties, hunting, fishing, building are over. He will, however, make dancing ornaments and weapons and headdresses which again lie close to the spirit realm. (I have quoted Waddell's statistical evidence for these tendencies in Table 18.)[A]

How did culture change influence the division of labour between the sexes? For the traditional productive activities, there has probably been hardly any change. I have quoted a table of exclusively masculine and feminine activities collected by Williams in 1923, and hitherto unpublished (Table 19).[B] Certain tasks of importance were omitted from this list, which may explain why Williams did not publish it. Sago making was probably always a male activity; so was the use of the digging stick preparatory to planting taro and yam. The harvesting of taro was probably always a specifically feminine task; there is clearly a taboo on men against harvesting taro. Even bachelors never do it but must leave it to his mother, his sister or his brother's wife. If men did it, I was told, they would not "know how" and they would never manage to eke out the crop until the next harvest. This did not apply to the harvesting of other crops. When Williams classified "planting" as a feminine task, he was probably thinking of the actual placing of the cuttings in the ground, though I have seen men as well as women do this.

In the Orokaiva view both men and woman are repositories of capacities and resources specific to themselves; the relationship between man and woman is the giving of exchange (mine ari) of the contributions of each. Man views woman as an equal exchange partner and this equality is real even though the care over legal and political matters is a distinctively masculine contribution. In the new activities introduced since European contact the same balance is preserved. Some new duties (e.g., the washing of clothes) were added to the specifically feminine preserve, church work and the purchasing of goods became a predominantly masculine preserve (as is attested by Waddell's statistics). The harvesting of rubber, taught exclusively to men on the plantations, became an exclusively male activity. On the other hand, the bulk of cash producing activities (working for pay, maintaining, harvesting and processing of coffee) were shared.

One interesting observation made by Waddell and confirmed by me is that most marketing of subsistence crops is done by the women whereas marketing of coffee is done by the men. The handling of harvested crops is normally a woman's prerogative. These are normally carried in large string bags which only married women can own and hang over their heads. While the casual European observer supposes that the women carrying these large bags are reduced to the status of beasts of burden, these bags signify the women's exlusive power over the crop; the fuller they are, the prouder the women are of them. Thus, only

A,B [See Cat. 116, pp. 225, 226, respectively--Analyst]

23: Keesing E-5 (1951) 1952
OJ23 Orokaiva OJ23

The Papuan Orokaiva Vs Mt. Lamington: Cultural Shock and Its Aftermath

Felix M. Keesing

What happens when people are subjected to unexpected catastrophic shock, dislocating their whole round of life and making a sudden break in cultural continuity? This occurred to some 9,000 Orokaiva in northern Papua when Mt. Lamington erupted on January 21, 1951. Some 4,000 Orokaiva and all of the approximately 50 whites at the Government and Mission stations in the main blast zone were killed. The survivors were forced to flee from ash-choked homes and gardens.

At the request of the Administrator of Papua and New Guinea, the writer and his wife visited this area some weeks after the main eruption and shortly after a second major blast. The purpose of the visit was to make a brief survey of the relief and rehabilitation operations set in motion by the Australian authorities and to give any advice possible. This area was one of the great battlegrounds of the Pacific war—the Kokoda-Buna-Oro Bay area—and since there are still a number of usable airstrips and jeeproads, it was possible to cover the emergency camps and other Government and Mission operations by plane, and then by jeep, canoe, and on foot, and to get some sense of the consequences of this catastrophe and of the problems involved.[1]

This paper does not purport to be based on profound knowledge of the situation for it will take a long while before its total dimensions can be properly assessed. Rather it is designed primarily to raise questions: some of theoretical significance, particularly regarding the responses of such people to cultural trauma of the first magnitude, and others from the "applied anthropology" aspect, relating to choices possible in official and mission policies in the wake of such a destructive experience.

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1. The actual field survey, covering approximately five days, was made in the company of Colonel Elliott Smith, District Commissioner in charge of relief operations, and included discussions with virtually all of the Government technical personnel, with representatives of the one Mission body operating in the area (the Anglican Mission), and through interpreters with some of the Orokaiva leaders. Discussions were held, too, with the Administrator, Colonel J. K. Murray, and other administrative personnel at the capital, Port Moresby, all of whom had been in and out of the devastated area from the beginning, and relevant official records were made available by them.

[p 16-A]

24: Schwimmer E-5 (1966-1973) 1977
OJ23 Orokaiva OJ23

1. In the Mount Lamington case, the institutional approach would produce results somewhat similar to Lessa's in his excellent paper "The Social Effects of Typhoon Ophelia (1960) on Ulithi" (1964). The major innovations over the last thirty years were due not to the eruption but to the Japanese invasion, the subsequent expulsion of the Japanese by Allied forces, the introduction of large-scale cash cropping, increased urban migration, and the development of officially supported indigenous political institutions.

   The exchange theory approach of Blau and Barth has been followed to some extent in the present essay, but as Garbett (170:225) remarks in the essay already referred to: "Unless one wants to treat situations as simply another kind of 'small group' in an extra-laboratory setting for the testing of propositions from exchange theory, one's findings have to be related to, and set in, a wider context presumably studied by other methods."
2. For semiological discussion on the Road Code, see Lévi-Strauss (1958:chap. 5) and Leach (1970:chap. 2).
3. As an illustration of connotative systems, Barthes (1964a) analyzes a full-color advertisement for grated cheese, spaghetti, and tomato paste and shows that the items in the picture are so displayed as to connote all the delights of a carefree life in sunny Italy where foods are sweet, fresh, unadulterated, and perfect in appearance.
4. The relationship between signifier and signified suggested here may not be peculiar to "the savage mind" but universal, as is suggested by Lacan (1966: 493–528).
5. One of the first useful studies of regional colonial macrosystems known to me in New Guinea ethnography is Burridge (1960), which indicates clearly the modalities of conflict and alliance in the Papuan–administration–missionary triangle. Extremely important also is Fredrik Barth's work on polyethnic systems (1969) and on forms of regional organization in New Guinea (1971).
6. The term "Pelean eruption" is applied to the type that occurred at Mount Pelée (St. Pierre, Martinique) in 1902. A large mass of ash is projected rapidly into the stratosphere to form an expanding mushroom-shaped cloud. The base of the column begins to expand rapidly as clouds of incandescent ash (the *nuée ardente*) avalanche down the slopes. The *nuée ardente* is lethal because of sudden damage to the respiratory system caused by inhaling hot (200°F) dust.
7. The reports written by these two scholars (Belshaw 1951; Keesing 1952) led to the inclusion of the case of the Mount Lamington Orokaiva in the project directed by H. G. Barnett and entitled "A Comparative Study of Cultural Change and Stability in Displaced Communities" (1961).
8. Here and throughout this essay I use the term "structure" in the sense of Lévi-Strauss (1958:chap. 15).
9. I have used British terminology in most of this essay as it seems hazardous to adopt American terms in a British-French conceptual framework. Where I use clan, American anthropologists would usually write "sib." The term "local clan group" refers to a coresident segment of a dispersed clan (or sib). A full discussion may be found in Schwimmer (1970a).

25: Schwimmer E-5 (1966-1970) 1974 OJ23 Orokaiva OJ23

Part III

Friendship and Kinship: An Attempt to Relate Two Anthropological Concepts[1]

5

Erik Schwimmer

THE PROBLEM OF A DEFINITION OF FRIENDSHIP

121 A universally applicable definition of friendship is difficult to arrive at. Nonetheless, the sentiments attached to the concept of friendship have, to anyone with anthropological experience in non-Western societies, the appearance of being universal. But even if the sentiments are universal, it is impossible to designate categories of persons, recognized in all cultures, between whom the sentiments of friendship normally prevail. The term 'friend' is, in many languages, non-existent or indistinguishable from 'kinsman.'

One may argue, as Paine has done (this volume, pp. 117–37), that friendship is a relationship found only in societies of a certain type. Thus, friendship would be personal and private and have characteristics such as autonomy, unpredictability, and terminality. Paine argues that societies which have friendship in this sense tend to be technologically advanced and complex in their socio-political structures. While one can find no scholarly objections to this approach, it leaves unsolved the question which concerns me in this essay: can we find a definition of friendship such that the symbolic idioms in which the sentiments of friendship are expressed in all cultures can be comparatively analysed?

Clearly, we cannot do so directly as these symbolic idioms are part of a vast variety of classificatory systems found in different societies and the place of friendship in these systems depends on their overall arrangement. We can, however, start from a universal type of association which is initiated by mutual attraction and which is maintained by the exchange of intrinsic benefits (benefits arising solely or largely out of the association itself). We can then inquire whether there is a universal relation between this phenom-

101 122 [114]

1 This essay is based on research carried out in the Northern District of Papua in 1966–7 and 1970 (with the financial help of the Canada Council and of the *Project for the Comparative Study of Cultural Change and Stability in Displaced Communities in the Pacific*, directed by Dr. H. G. Barnett). My wife, Ziska, helped in data collection, especially for the section on *jao* relationships. Dr. T. F. S. McFeat and Mr. A. Tanner read the manuscript and made useful suggestions.

26: Schwimmer E-5 (1966-1970) 1974
OJ23 Orokaiva OJ23

phasis on the "logic of the concrete," is equally insistent on precision in matters of material culture, because in the analysis of symbols it often happens that important distinctions are made between species, varieties, subvarieties, methods of food preparation, of the manufacture of objects, and the like.

Quite apart from this concern with meticulous classification, componential analysis,-and lexical-semantic relations, it seems to me profitable to turn to the semiotics of material objects, especially if the field of connotation and denotation crosscuts numerous levels of conceptualization. There are some objects in every culture which may almost be regarded as "total phenomena" in the Maussian sense: they are at once of economic value, expressive of social relations, ploys in a political strategy, and religious symbols. They also appear as the subjects of myths. As a general rule, they are utilized as objects of exchange, which explains why they are as multivalent as exchange itself.

At least part of their significance in anthropology lies in their capability to link the levels of myth and ritual. The best way of explaining what I mean by this suggestion is to give some instances of semiotic analyses of objects which may be called "total phenomena," and include in these analyses the levels of both myth and ritual. Their role as "logical operators" linking these levels will then become obvious. Though my argument draws on a wide range of structuralist literature, the most important sources are Lévi-Strauss' introduction to Mauss' *Sociologie et anthropologie* (Lévi-Strauss 1950) and the Finale of *L'Homme Nu* (1971).

The ethnographic data are from the Orokaiva, a tribe in the northern district of Papua, where I did fieldwork for one year in 1966–1967 and for another three months in 1970.[1] The Orokaiva live on the fertile slopes of Mount Lamington. They are swidden agriculturists, whose main crop is taro, while yam, sweet potato, sago, sugar cane, coconut, and numerous other nuts, as well as latterly German taro are subsidiary crops. Areca grows in most of the district. The population of 25,000 is very dense on the actual slopes of the volcano, sparser in the riverine areas. The kinship system is patrilineal, with a strong bilateral emphasis. I have given a detailed description of the various forms of

26: Schwimmer E-5 (1966-1970) 1974
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Orokaiva marriage (Schwimmer, 1970) and have shown that sister-exchange marriage, though infrequent, is regarded as the ideal form. Elopement and abduction marriages, once the most frequent, are now frowned upon, though elopement is still prevalent. The patrilateral preference rule (marrying out a girl in her mother's village) is still regularly stated by informants. In my records, which go back to the third generation, I found that 35% of the resident married women had been married out by that rule for the whole three generations, i.e., they had been exchanged for their mothers and their mothers for their grandmothers.

In the study [2] that follows, I shall first present data concerning the coconut and areca, then about the taro. I shall follow this presentation with a brief discussion about the relation between the levels of myth and ritual.

1. COCONUT AND ARECA

A salient characteristic of the ethnobotany of the Orokaiva is the classification of plants as masculine and feminine. Certain important cultivars are grouped together as opposite-sex couples and grown in close association with one another. Claims are made that such plants will not prosper unless they are planted close together and that, in their wild state, they are also found together.

The symbolic association of these pairs of plants may be based on a number of shared characteristics: the similar outward appearance of the fruit, a coincidence in the time of fruiting, and similarities in culinary use, taste, and supposed physiological effects of the fruit when eaten. Sometimes the pairs of plants are linked in ritual use and in a common myth.

Coconut and areca are planted together in villages as well as gardens. Both nuts are eaten raw between meals; both grow on palms; both are offered to visitors—the coconut as refreshment immediately upon arrival and the areca (along with *hingi* pepper and lime) for chewing during the conversation. At mortuary feasts coconut and areca are the principal gifts, offered in large quantities to guests from villages who helped to bury

26: Schwimmer E-5 (1966-1970) 1974
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NOTES

101 1. The classic works on the Orokaiva are Williams (1928, 1930).
114 Useful studies in Orokaiva swidden agriculture are Crocombe and Hogbin (1963), Rimoldi (1966), Krinks and Waddell (1968). For my own studies on Orokaiva culture, see Schwimmer (1967, 1969, 1972, 1974, and n.d.).

114 2. Most of the present study was done in Paris in 1970 and distributed in mimeographed form by the Laboratoire d'Anthropologie
128 Sociale under the title "The Ideology of Exchange." I should like to express my gratitude to Professor Lévi-Strauss, Drs. Godelier and Pouillon, and the other members of the staff for their hospitality and encouragement. My wife, Mrs. Ziska Schwimmer, worked with me in the field on the collection of data and later with their analysis.

824 3. "A principle of gradation by which elements are related to the
431 whole of which they form part."

4. Professor Lévi-Strauss suggested to me a most interesting relationship between this myth and the Polynesian Maui cycle. Maui
121 was killed by a "Woman of Darkness," Maori: Hinenuiotepo.

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27: Schwimmer E-5 (1966-1970) 1979 OJ23 Orokaiva OJ23

Conclusion

This paper has been an exercise in semiotic anthropology. Semiotics has always been a part of anthropology (cf. Schwimmer 1977b), but we are becoming more conscious about it and borrowing some methods. We therefore set up a domain, consisting of two sets of oppositions (use value/exchange value; identification/alienation) which seemed to be in some need of clarification. We broke the domain down to its modalities and as a result, I hope, clarified a number of Orokaiva concepts of 'work' – all a little unexpected, probably, and certainly not clear to myself until I began analysis in the form described here. Moreover, the two oppositions that formed the frame have become a little clearer too.

Semiotic anthropology has a limited role, but this role is precisely what has been attempted here: clarifying concepts. I might have made up an abstract model from the modalities and the categories but refrained as it would have added little. I have tried to make the connections visible: semiotics does not compose master schemes, it decomposes them.

Notes

1. Fieldwork done in the Northern Province of Papua New Guinea (1966–67, 1970, 1973) and used as basis for the present discussion was supported by grants from the Canada Council.

2. This statement was made to me by Councillor Colin in a taped oration held in Torogota in 1966. His words: *'Iji aramiko ambo ainge eaora. Amina pure mo umbae. Amora pure re Keriso na ikena umbasi ea avo.'*

3. Melanesian time allocation studies have recently been the subject of a detailed economic analysis (Kirkpatrick 1977). It is of interest that the field studies of time allocation which were given the highest "subjective rating" (ibid. Table 6.1) were Waddell (1972) and Waddell and Krinks (1968). The latter study was conducted in the Orokaiva villages of Ionda and Sivepe, where I myself did intensive research some years later, on a different subject. As I have already published a detailed commentary on the Waddell and Krinks study (Schwimmer 1969: 144–152), I say little about it here. It is, however, highly relevant to a conceptual study such as the present one.

4. M. Panoff reports that *kuma*, in the sense of subsistence activities, took up an average of four hours per day among the Maenge. He mentions no cash crops. Kirkpatrick's statistics (1977, Table 6.3) show that the mean time spent per man on all agricultural tasks in nine Melanesian villages is about 22 hours per week. One may thus assume that Panoff's figure refers to all tasks making up agricultural activity in Melanesian time allocation studies. But what is here meant by 'activity'? As we show in the present article, it includes not only the main and ancillary agricultural

27: Schwimmer E-5 (1966-1970) 1979 OJ23 Orokaiva OJ23

121 tasks but also travel, rest, meals and miscellaneous "other tasks" – the most mentionable of which are cooking and washing. The phrase "dépense d'énergie" must thus be taken very broadly.

5. The present author's knowledge of Greek antiquity is at undergraduate level. From an anthropological viewpoint, an interesting general discussion of Hesiod will be found in Jaeger (1946). But see also Vernant (1965: 19–47) and Detienne and Vernant (1974: 59–124).
6. The translation of ΔΙΚΗ as 'justice' obscures an interesting difference made in Greek between two kinds of justice. *Themis* (ΘΕΜΙΣ) justice as dispensed by the early kinds and nobles whereas ΔΙΚΗ appears to be a system of dispute settlement by compensation payments to the injured party. The fundamental meaning of ΔΙΚΗ is 'due share' (Jaeger 1946: 103). ΥΒΡΙΣ would then be to refuse compensation and seek justice by force.
7. Vernant's explanation (p. 222) of this classification is as follows: "Dans la perspective de la valeur d'usage, le produit n'est pas vu en fonction du travail humain qui l'a créé, comme travail cristallisé; c'est au contraire le travail qui est vu en fonction du produit, comme propre à satisfaire tel besoin de l'usager . . . Marx écrit, de façon frappante, qu'en qualité de valeur d'échange, la marchandise n'est plus envisagée au point de vue du service qu'elle rend mais du service qui lui a été rendu par cela qu'elle a été produite." (*Critique de l'Economie politique*, p. 32.)
8. 121 461 824 It has been objected that a work of art differs from a taro in that the former is a statement about patterns in the universe while the latter is not. My own view of taros, however, is that in the sense of Hjelmslev, they ought to be regarded as sign as well as substance; as signs, which they are whenever handled ritually, they do contain statements about the universe. On the semiotic issues involved see Hjelmslev (1953), Schwimmer (1977a, 1977b).
9. 114 For relevant ethnographic data on Orokaiva, see Williams (1928, 1930); Waddell and Krinks (1968); Schwimmer (1967, 1969, 1973, 1974a, 1979a). For specifically semiotic investigations on Orokaiva, see Schwimmer (1974b, 1977a, 1979a, 1979b.)
10. 121 Searle-Chatterjee demonstrates that group identity among the polluted caste groups remains firm and positive. It appears to be threatened only by the attempted suppression of the notion of caste by the central government. If this should ever succeed, caste identity would be threatened, because public belief in its toughness, hotbloodedness, honour etc. would be lost.
11. While I have learnt a good deal from Parry's fascinating analysis of the Mahabrahmans, I wish to dissociate myself from Parry's comments on Louis Dumont, as it would not be very difficult to reconcile Parry's findings with Dumont's theory.
12. I wish to acknowledge a debt to Mr. Edwin Ardener who suggested this argument to me during conversation at the York conference. He is not responsible, of course, for what I did with it. A rather similar point is made by Dumont (1977: 118, 182).

27: Schwimmer E-5 (1966-1970) 1979 OJ23 Orokaiva OJ23

121 13. This method of setting up semiotic domains for study is probably due to Lévi-Strauss, long before it became canonized as part of the science of semiotics (Eco 1972). See also Schwimmer (1977a), for an Orokaiva example.

14. The term 'manager' instead of the tedious 'big man' is due to Burridge (1969) and is heartily recommended to practitioners.

114 15. I briefly analyzed Williams' Kutubu study (Williams 1976), but missed the full implications of the myth cycle reported by Williams. A re-reanalysis of that work, with full use of the myths, is overdue.

16. See for a first analysis Schwimmer (1973), later supplemented by Schwimmer (1974a) (coconut, areca and taro) and (1979a) (pigs).

554 577 305 17. A discussion of work specialization among Orokaiva (of which there is but little) will be found in Schwimmer (1967). An interesting type of specialist not so far described is the expert body decorator (Schwimmer 1973: 177, 185) to whom the ritual payment of a pig is due when he officiates, and who appears to officiate regularly at initiations.

114 18. For a full discussion of the concepts involved see Schwimmer (1979a).

19. The text: "*Umo meni ingesoa, eti atimbasoa, i umbasoa, umo timbasoa; donda deire tapa amo aisi oa eto tunga osaga umbasoa.' Ainge ena. Ainge ivu ta ena: 'Adam, umo ainge hogoro umbasoa, andage aisi oa eto i gaipi oa, pure firembasi oa; iji vevere tunga osago hamo memega re tapa pure galha aisi oa.' Ainge ena. Ainge eto ikena avo embo Eave te Adam te ainge ena: 'Ainge dombo dago tapa endata emo ainge do aisi uje eagora: pure te deire amo tapa hamo memega te tunga osaga te tapa pamone ainge ga earora, dago embo ainge hamo memega te tunga osaga te tapa pure galha avo earora. Eto donda matu nunuga ena avo indie iruetera avo. Aravorate, ungo kiaekine eto God na taekena avo umbuto India. Aravo embo eto avo God ena: 'Avo iji koso ami tunga osaga iji tunga osaga aisi ova, ainge tunga javatoho iji amo tunga javatoho aisi ova.' Ainge ena. Avo embo dago tapa emo oroho emite ue irora.*" Robert, Sivepe, 1966.

694 754 20. The text: "*Embo handa pirisi embo na punduto umbuto, sokova ari ke eto umbuto, Kokoda pambuo, koto ea, aramiko pure mo aravora.*" Councillor Colin, Tórogota, 1966. After describing a number of devices used by magicians and miracles they wrought, Colin continued: "*Avo da pirisi embo na samani eo pambuto re koto ea, amiko donda aravo porakau aravo pure puruna.*" Translation: Police handcuffed village people and took them to Kokoda if they were believed to be telling lies. Court was held; then they would start work . . . When a summons was issued by the policeman, then those magic things would be put to work.

245 21. At the time the Waddell and Krinks study was done, only the younger men grew coffee; the authors therefore saw a correlation between age and coffee growing. During my restudy I found this correlation to be false, first because it did not apply to the clan omitted from the earlier authors' chosen sample, and secondly because the oldest men they studied began to grow coffee shortly after their departure. The substitution of German taro (*xantosoma* sp.) for classical taro (*colocasia* sp.)